

## Awareness about passive smoking among Jazan University students, Saudi Arabia

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### ABSTRACT

**Background:** Passive smoking is a dangerous result of active smokings which have harmful effects on the heart and blood vessels and increase the risk of lung cancer, this study conducted to identify the awareness about passive smoking among Jazan University students. **Methodology:** A descriptive cross-sectional study was conducted using online questionnaire. The survey includes demographic information and other data like the prevalence of Knowledge about passive smoking, prevalence of Knowledge about effects of passive smoking and the sources of Information about it. **Result:** The sample size was 478 (46.0%) males and (54.0%) females. According to the college, participants were distributed in almost equal manner in which faculty of Medicine (33.4%), faculty of Science (34.6%), and faculty of computer science (32%). About (77.6%) of the participants agreed that passive smoking is a contact with a smoker during smoking while (3.6%) disagreed. On the other hand (76.2%) of the participants agreed that passive smoker is exposed to smoking harms as an active smoker. About (72.8%) of the participants believed that passive smoking increases the lung cancer incidence while (4.2%) didn't. Medical student showed best knowledge and practice than other students. **Conclusion:** Current study identified that medical students have background knowledge about smoking better than other student at JU, but their attitude and practice toward avoiding passive smoking is not related to their level of knowledge, which necessitate development of extra-curriculum awareness programs to increase their awareness and change their passive attitude and practice.

**Keywords:** Passive smoking, awareness, university student, Jazan



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## 1. INTRODUCTION

Tobacco smoke contains more than 7,000 chemicals, including hundreds of toxic materials and about 70 that can cause cancer (United States Public Health Service, 2014). World Health Organization (WHO) estimated that more than 8

million died annually due to tobacco smoke, about 87.5% due to direct tobacco used and the rest are non-smokers being exposed to second-hand smoke (WHO, 2019). There are two types of tobacco smoke, mainstream smoke which is directly inhaled by the mouth of a smoker and side stream smoke or second-hand smoke or passive smoking which comes from burning tip of cigarette mixed with surrounded air. Second-hand smoke (SHS) is sometimes referred to environmental tobacco smoke. It is a combination of the smoke exhaled by a smoker and the smoke that comes from the end of a burning cigarette. When someone breathes in this smoke, it is often referred to as passive smoking (United States Public Health Service, 2014).

Passive smoking has Health influence and financial influence the Health influence: There are immediate harmful effects on the heart and blood vessels due to exposure to secondhand smoke. It causes coronary heart disease and increases the risk of stroke by 20–30% and the risk of developing lung cancer by 20–30% in non-smokers who are exposed to the passive smoke in enclosed areas such as homes or work offices. The risk of sudden infant death syndrome due to exposure to passive smoke after the birth of baby increases too. Additionally, deaths due to stroke because of exposure to secondhand smoke are more than 8,000 deaths annually (Dybing & Sanner, 1999).

Financial impact of SHS exposure was directly related to hospital nights and emergency visits. Adults who exposed to secondhand smoke had 1.28 times hospital nights and 1.16 times more emergency visits than adults who did not. Total annual health care costs due to exposure to secondhand smoke were \$ 4.6 billion (including \$ 3.8 billion hospital nights and \$ 0.8 billion for emergency visits) in 2000, \$ 2.1 billion (including \$ 1.8 billion for hospital nights and \$ 0.3 billion for emergency visits in 2005, and \$ 1.9 billion (including \$ 1.6 billion for hospital nights and \$ 0.4 billion for emergency visits) in 2010 (Yao et al., 2018).

Knowledge of tobacco smoking among medical students found that most of them (91.4%) did not have sufficient information about the epidemiology of smoking (Jradi and Al-Shehri 2014). Although a good percentage of knowledge and a high level of awareness about the health effects of smoking among the Saudi female students, it did not affect their smoking attitude (Pascal Iloh & Collins, 2017). As regards to the effect of passive smoking on birth weight, a cohort study showed that the awareness of the hazards due to smoking and exposure to smoke on pregnant mothers and her baby were quite high (Hamedy et al., 2017) while in Nigerian study was 65.2% (Pascal Iloh & Collins, 2017). Concerning the effect of passive smoking on children, SHS worsened the health of two-third of the children but respiratory symptoms appeared in all of them (Sam et al., 2020). The exposure to environmental tobacco smoke is the most significant preventable risk factor for admission to hospital with pneumonia among children aged five (Suzuki et al., 2009). Prolonged passive smoking exposure at home among non-smokers increased lung cancer risk (Wang et al., 2015; Afif et al. 2020; Ali & Newigy, 2020). Education was closely related to awareness of passive smoking and the highly educated people were more aware (88.82%) of the effects of passive smoke than low educated people (78.78%) (Cheah et al., 2018). In Saudi study they also indicated that smoking is significantly related to the level of education where it was the highest prevalence among the low-educated population (Jarallah et al., 1999).

There doesn't seem to be a lot of researches about public awareness of passive smoking in Saudi Arabia particularly in Jazan region, therefore the objective of this study was to determine the awareness, attitudes and practices toward passive smoking among Jazan university students.

## 2. RESEARCH METHODOLOGY

This study is a descriptive cross-sectional study design conductive over period of 6 months start on January 2019 conducted among Jazan University (JU) students. JU composed of 26 colleges distributed throughout Jazan Region, which is located at the southwest area of Saudi Arabia.

The sample size was calculated using 95% confidence level and 5% confidence interval and total study population of 57136 students by using this equation:  $d^2 / n = z^2 \cdot \alpha \cdot P (P - 1)$  to be 200 students. Assuming a non-response rate of 10% for that the total sample size was 440 students distributed in three main college (College of Medicine, College of Science and College of Computer) using stratified multi-staged type of random sampling technique to select study sample from study populations of Jazan university which is about 57136 with a confidence level of 95% and a confidence interval (margin of error) of study sample was 440.

The data collected by validated questionnaire after pilot study conducted on 30 students composed of 39 Questions. The questionnaire is dividing into two parts. The first part about sociodemographic data and the second one includes of three section to assess level of knowledge about passive smoking, effect of passive smoking and third section awareness about protectives measures against passive smoking. The questionnaire developed in Arabic language after translation for English language. Data was entered and analyzed using Statistical Package for the Social Sciences (SPSS) version 21.

Ethical approval was obtained from the Institutional Review Board (IRB), Jazan University, Saudi Arabia, and the data was stored under high levels of confidentiality without names to protect the privacy of the participant, and the research team obtained approval from all participants. They also have the right to stay or withdraw at any time of study.

### 3. RESULT

A total of 478 questionnaires were distributed and collected among study population, all of them were Saudi 478 (100.0%). Male students were 230 (46.0%), and female were 270 (54.0%). The age of participants ranges from 18 to 29 years with a mean age of  $21.69 \pm 2.134$  and a median and mode of 22 years. According to the residency 301 (60.9%), students were lived in rural. Most of students lived in low landers and costal area 226(45.2%) and 175 (35.0%) respectively. Most of the participants were single 448 (89.6%) and only 46 (9.2) were married. Most of the participants were lived in their parents' home 401 (80.2%). About one third of the students 313 (65.5%) were in the first three academic year. The student distributed in the College of Medicine, College of Science and College of Computer in equal manner 176 (33.4%), 173 (34.6%) and 160 (32.0%) respectively as shown in table 1.

**Table 1** The background characteristics of the study population

Demographic characteristics		Gender - Frequency (%)		Total (%)
		Male	Female	
		230 (46.0%)	270 (54.0%)	500 (100%)
Residency	Urban	90 (18.0)	109 (21.8)	199 (39.8)
	Rural	140 (28.0)	161 (32.2)	301 (60.2)
Geographical Distribution	Coastal	78 (15.6)	97 (19.4)	175 (35.0)
	Lowlander	105 (21.0)	121 (24.2)	226 (45.2)
	Mountain	47 (9.4)	52 (10.4)	99 (19.8)
Marital Status	Single	215 (43.0)	233 (46.6)	448 (89.6)
	Married	14 (2.8)	32 (6.4)	46 (9.2)
	Divorced	1 (0.2)	5 (1.0)	6 (1.2)
	Widow	0 (0.0)	0 (0.0)	0 (0.0)
College (Program)	Medicine	77 (15.4)	90 (18.0)	167 (33.4)
	Science	66 (13.2)	107 (21.4)	173 (34.6)
	Computer Science	87 (17.4)	73 (14.6)	160 (32.0)
Academic Level	1 <sup>st</sup> year	39 (7.8)	62 (12.4)	101 (20.2)
	2 <sup>nd</sup> year	37 (7.4)	69 (13.8)	106 (21.2)
	3 <sup>rd</sup> year	65 (13)	41 (8.2)	106 (21.2)
	4 <sup>th</sup> year	51 (10.2)	46 (9.2)	97 (19.4)
	5 <sup>th</sup> year	15 (3)	31 (6.2)	46 (9.2)
	6 <sup>th</sup> year	23 (4.6)	21 (4.2)	44(8.8)
With whom you live	Parents	172 (34.4)	229 (45.8)	401 (80.2)
	Spouse	10 (2.0)	25 (5.0)	35 (7.0)
	Relatives	8 (1.6)	4 (0.8)	12 (2.4)
	Dorm	16 (3.2)	2 (0.4)	18 (3.6)
	Other	24 (4.8)	10 (2.0)	34 (6.8)

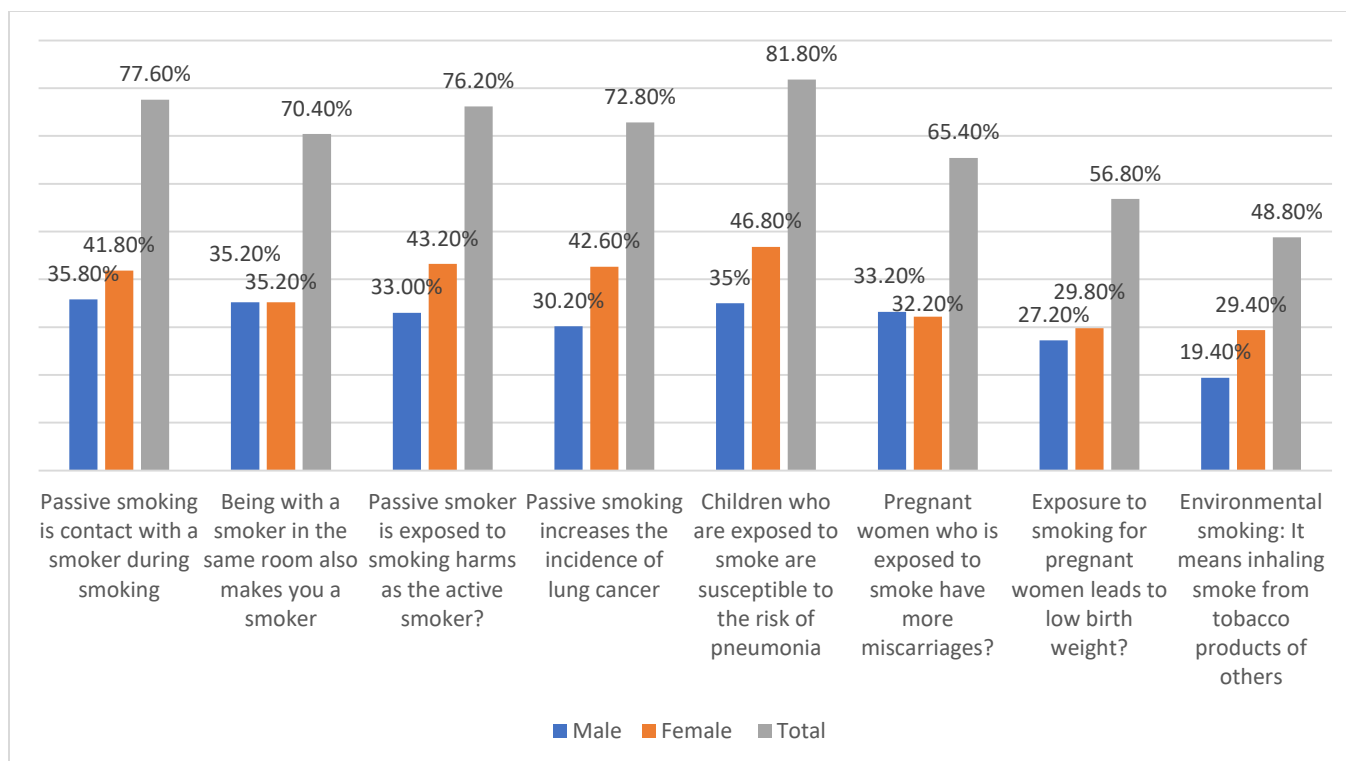
The prevalence of smoking among study population is mentioned in table 2. According to residency, data revealed that (60.7) are from rural areas. According to geographical distribution revealed 159 (46.6) are from lowlanders. According to marital status 307 (90.0) are single, and only 29 (8.5) are married, 5 (1.5) are divorced.

Regard to smoking knowledge in relation to gender is shown in Figure 1. 388 (77.6) agreed that passive smoking is a contact with a smoker during smoking. Being with a smoker in the same room makes you a smoker, 352 (70.4) agreed with this statement. Those who were agreed that passive smoker is exposed to smoking harms as an active smoker were 381 (76.2). About 364 (72.8) believed that passive smoking increases the lung cancer incidence while 21 (4.2) didn't know. Besides, 409 (81.8) believed that children exposed to smoke are susceptible to the risk of pneumonia while small percentage 13 (2.6) disagree. As for pregnant

women, 327 (65.4) agreed that pregnant women exposed to smoke have more miscarriages while 21 (4.2) didn't know. Also, 284 (56.8) agreed that exposure of pregnant women to smoke leads to low birth weight while 20 (4.0) disagree. As for the meaning of environmental smoking, 244 (48.8) thought that it means smoke inhalation from tobacco products of others.

**Table 2** prevalence of smoking among study population

Prevalence of smoking among study population		Frequency/Prevalence (%)			$\chi^2$	p Value	95% CI
		Male	Female	Total			
Overall Prevalence		160	181	341			
Residency	Urban	64 (18.8)	70 (20.5)	134 (39.3)	0.080	0.778	
	Rural	96 (28.2)	111 (32.6)	207 (60.7)			
Geographical area	Costal	56 (16.4)	57 (16.7)	113 (33.1)	0.250	0.883	0.889 – 0.939
	Mountain	31 (9.1)	38 (11.1)	69 (20.2)			
	Lowlander	73 (21.4)	86 (25.2)	159 (46.6)			
Marital Status	Single	147 (43.1)	160 (46.9)	307 (90.0)	7.280	0.026	0.014 – 0.42
	Married	12 (3.5)	17(5.0)	29 (8.5)			
	Divorced	1 (0.3)	4 (1.2)	5 (1.5)			
College (Program)	Medicine	62 (18.2)	74 (21.7)	136 (39.9)	8.810	0.012	0.000 – 0.016
	Science	48 (14.1)	68 (19.9)	116 (34.0)			
	Computer Science	50 (14.7)	39 (11.4)	89 (26.1)			
Academic Level	1 <sup>st</sup> Year	23 (6.8)	37 (10.9)	60 (17.6)	31.913	0.000	0.000 – 0.006
	2 <sup>nd</sup> Year	20 (5.8)	41 (12)	61 (17.9)			
	3 <sup>rd</sup> Year	45 (13.2)	27 (7.9)	72 (21.1)			
	4 <sup>th</sup> Year	37 (10.8)	35 (10.3)	72 (21.1)			
	5 <sup>th</sup> Year	14 (4.1)	20 (5.9)	34 (9.9)			
	6 <sup>th</sup> Year	21 (6.2)	21 (6.2)	42 (12.3)			



**Figure 1** percent of agreement on questions related to knowledge describing total percent, male and female percents

As regard to smoking knowledge in relation to a college in Table 3, about 388 (77.6) of student agreed that passive smoking is the contact with a smoker during smoking. Most of student agreed with that being with a smoker in the same room makes you a smoker. About 381 (76.2) agreed that passive smoker is exposed to smoking harms as an active smoker. About a 364 (72.8) of students believed that passive smoking increases the incidence of lung cancer. Children exposed to smoke are susceptible to the risk of pneumonia 409 (81.8) agreed with that. As for pregnant women, 327 (65.4) believed that pregnant women exposed to smoking have more miscarriage. Also, 284 (56.8) believed that exposure of pregnant women to smoke leads to low birth weight. As for the definition of environmental smoking 244 (48.8) accepted that it is the inhalation of smoking from tobacco product of others while 20 (4.0) disagreed.

**Table 3** Knowledge about smoking according to the College

Items		Frequency/Prevalence (%) in Colleges				
		Medicine	Science	Computer Science	Total	P value
Passive smoking is contact with a smoker during smoking	Agree	145 (29.0)	130 (26.0)	113 (22.6)	388 (77.6)	0.010
	Disagree	3 (0.6)	7 (1.4)	8 (1.6)	18 (3.6)	
	I don't know	19 (3.8)	36 (7.2)	39 (7.8)		
Being with a smoker in the same room also makes you a smoker	Agree	135 (27.0)	113 (22.6)	104 (20.8)	352 (70.4)	0.008
	Disagree	22 (4.4)	37 (7.4)	33 (6.6)	92 (18.4)	
	I don't know	10 (2.0)	23 (4.6)	23 (4.6)	56 (11.2)	
Passive smoker is exposed to smoking harms as the active smoker?	Agree	134 (26.8)	133 (26.6)	114 (22.8)	381 (76.2)	0.237
	Disagree	12 (2.4)	12 (2.4)	20 (4.0)	44 (8.8)	
	I don't know	21 (4.2)	28 (5.6)	26 (5.2)	75 (15.0)	
Passive smoking increases the incidence of lung cancer	Agree	124 (24.8)	123 (24.6)	117 (23.4)	364 (72.8)	0.873
	Disagree	5 (1.0)	8 (1.6)	8 (1.6)	21 (4.2)	
	I don't know	38 (7.6)	42 (8.4)	35 (7.0)	115 (23.0)	
Children who are exposed to smoke are susceptible to the risk of pneumonia	Agree	140 (28.0)	139 (27.8)	130 (26.0)	409 (81.8)	0.942
	Disagree	4 (0.8)	5 (1.0)	4 (0.8)	13 (2.6)	
	I don't know	23 (4.6)	29 (5.8)	26 (5.2)	78 (15.6)	
Pregnant women who is exposed to smoke have more miscarriages?	Agree	114 (22.8)	109 (21.8)	104 (20.8)	327 (65.4)	0.598
	Disagree	9 (1.8)	7 (1.4)	5 (1.0)	21 (4.2)	
	I don't know	44 (8.8)	57 (11.4)	51 (10.2)	152 (30.4)	
Exposure to smoking for pregnant women leads to low birth weight?	Agree	102 (20.4)	100 (20.0)	82 (16.4)	284 (56.8)	0.019
	Disagree	3 (0.6)	4 (0.8)	13 (2.6)	20 (4.0)	
	I don't know	62 (13.4)	69 (13.8)	65 (13.0)	196 (39.2)	
Environmental smoking: It means inhaling smoke from tobacco products of others.	Agree	67 (13.4)	99 (19.8)	78 (15.6)	244 (48.8)	0.001
	Disagree	3 (0.6)	11 (2.2)	6 (1.2)	20 (4.0)	
	I don't know	97 (19.4)	63 (12.6)	76 (15.2)	236 (47.2)	

The prevalence of smoking practice according to gender is shown in Table 4, the table shows that the higher percentage of students who don't smoke near their friends, colleagues or family is female students 248(49.6%) and lower percentage is male students 182(36.4) with p-value (0.000). The table also shows for question Do you usually smoke in designated smoking areas, or you don't mind smoking anywhere the higher percentage answered they Smoke in places designated for smoking only 58(11.6%)

and lower percentage answered they do not smoke if there is no designated smoking area 21(4.2%) in both gender With p-value (0.017). The table shows that the percentage of students who take preventive measures to prevent others from being exposed to smoke. The higher percentage is male students' 41(8.2%) lower percentage is female students 23(4.6%) with p-value (0.008). The table also shows for question: What are the precautions to prevent other people from being exposed to smoke. The higher percentage answered that they Avoid smoking in the presence of others 48(9.6%), and lower percentage answered they used ventilation and air filtration 19(3.8%) in both genders.

The prevalence of smoking practice according to college is shown in Table 5. The table shows that the higher percentage of students who don't smoke near their friends, colleagues or family is students in medicine college 128(29.6%) and lower percentage is students in computer science college 137(27.4%). The table also shows for question: Do you usually smoke in designated smoking areas, or you don't mind smoking anywhere the higher percentage answered they Smoke in places designated for smoking only and they do not mind smoking anywhere if there is no designated smoking area 17(3.4) % and lower percentage answered they do not smoke if there is no designated smoking area 4(0.8%) in all colleges With p-value (0.092).

The table also shows that the percentage of students who take preventive measures to prevent others from being exposed to smoke the higher percentage is smokers students in science college 31(6.2%) and lower percentage is smokers students in medicine college 14(8.2%). The table also shows for question: What are the precautions to prevent other people from being exposed to smoke, the higher percentage answered they do others 16(3.2%), and lower percentage answered they used ventilation and air filtration 9(1.8%) in all colleges, with p-value (0.014).

**Table 4** Practice of smokers according to the gender

Items		Gender			
		Male	Female	Total	P value
Do you smoke near your friends, colleagues, or family?	Yes	48 (9.6)	22 (4.4)	70 (14)	0.000
	No	182 (36.4)	248 (49.6)	430 (86)	
Do you usually smoke in designated smoking areas, or you don't mind smoking anywhere?	I Smoke in places designated for smoking only	34 (6.8)	24 (4.8)	58 (11.6)	0.017
	I do not smoke if there is no designated smoking area	11 (2.2)	10 (2.0)	21 (4.2)	
	I do not mind smoking anywhere if there is no designated smoking area	24 (4.8)	15 (3.0)	39 (7.8)	
Do you usually take some precautions to prevent other people from being exposed to smoke?	Yes	41 (8.2)	23 (4.6)	64 (12.8)	0.008
	No	17 (3.4)	14 (2.8)	31 (6.2)	
What are the precautions to prevent other people from being exposed to smoke?	Ventilation and air filtration	12 (2.4)	7 (1.4)	19 (3.8)	0.107
	Avoid smoking in the presence of others	26 (5.2)	22 (4.4)	48 (9.6)	
	Others	25 (5.0)	21 (4.2)	46 (9.2)	

The prevalence of Knowledge about effects of passive smoking according to Gender were shown in table 6, the table shows for the question: What do you do when someone smokes beside you, the higher percentage of students doing practice according to gender is female students 209 (41.8%) and the lower percentage is males students 154 (30.8%) with the value-P (0.006). The table also shows for the question, when there are children in front of a smoker at home, that the higher percentage of students doing practice according gender is females students 247(49.4%) and lower percentage is males students 205 (41%) with p-value (0.000). The table also shows for the question when a family member smokes in the presence of a pregnant woman that the higher percentage of students doing practice according to gender is female students 252(50.4%) and lower percentage is males students 208(41.8%) with



p-value (0.003). The table also shows for the question, When you are in a place where smoking is prohibited and you see a smoker that the higher percentage of students doing practice according to gender is female students 198(39.4%) and lower percentage is male students 128(25.6%) with p-value (0.000).

**Table 5** Practice of smokers according to the colleges

Items		Colleges				
		Medicine	Science	Computer Science	Total	P value
Do you smoke near your friends, colleagues, or family?	Yes	19 (3.8)	28 (5.6)	23 (23)	70(14)	0.436
	No	148 (29.6)	145 (29)	137 (27.4)	430 (86)	
Do you usually smoke in designated smoking areas, or you don't mind smoking anywhere?	I Smoke in places designated for smoking only	17(3.4)	24(4.8)	17 (3.4)	58 (11.6)	0.092
	I do not smoke if there is no designated smoking area	5 (1.0)	12 (2.4)	4 (0.8)	21 (4.2)	
	I do not mind smoking anywhere if there is no designated smoking area	8 (1.6)	14 (2.8)	17 (3.4)	39 (7.8)	
Do you usually take some precautions to prevent other people from being exposed to smoke?	Yes	14 (2.8)	31 (6.2)	19 (3.8)	64 (12.8)	0.183
	No	10 (2)	9 (1.8)	12 (2.4)	31 (6.2)	
What are the precautions to prevent other people from being exposed to smoke?	Ventilation and air filtration	6 (1.2)	4 (0.8)	9 (1.8)	19 (3.8)	0.014
	Avoid smoking in the presence of others	9 (1.8)	28 (5.6)	11 (2.2)	48 (9.6)	
	Others	14 (2.8)	16 (3.2)	16 (3.2)	46 (9.2)	

The prevalence of Knowledge about effects of passive smoking according to colleges were shown in table 7, the table shows for the question What do you do when someone smokes beside you, that the higher percentage of students doing practice according to colleges is students in science college 133(16.6%) and the lower percentage is students in medicine college 113(22.6%) with P-value (0.003). The table also shows the question when there are children in front of a smoker at home that the higher percentage of students doing practice according colleges is students in science college 161(32.2%) and lower percentage is students in medicine college 145(29%). The table also shows for the question when a family member smokes in the presence of a pregnant woman that the higher percentage of students doing practice according to colleges is students in science college 163(32.6%) and lower percentage is students in medicine college 148(29.6%) with p-value (0.020). The table also shows for the question, When you are in a place where smoking is prohibited and you see a smoker that the higher percentage of students doing practice according to colleges is students in science college 129(25.8%) and lower percentage is students in computer science college 98(19.6%) with p-value (0.002).

**Table 6** Knowledge about effects of passive smoking according to Gender

Items		Gender			
		Male	Female	Total	P value
What do you do when someone smokes beside you?	Ask him to put out the cigarette	24(4.8)	51(10.2)	75(15)	0.006
	Ask him to smoke elsewhere	42(8.4)	62(12.4)	104(20.8)	
	Go away from him until he puts it out	88(17.6)	96(19.2)	184(36.8)	
	I do nothing	76(15.2)	61(12.2)	137(27.4)	
When there are children in front of a smoker at home	Ask him to put out the cigarette	79(15.8)	56(11.2)	135(27)	0.000
	Ask him to smoke elsewhere	64(12.8)	137(27.4)	201(40.2)	
	Ask to children to go away from him	62(12.4)	54(10.4)	116(23.2)	
	I do nothing	25(5)	23(4.6)	48(9.6)	
When a family member smokes in the presence of a pregnant woman	Ask him to put out the cigarette	73(14.6)	76(15.2)	149(29.8)	0.003
	Ask him to smoke elsewhere	107(21.4)	108(21.6)	215(43)	
	Ask pregnant lady to go away from him	28(5.8)	68(13.6)	96(19.2)	
	I do nothing	22(4.4)	18(3.6)	40(8)	
When you are in a place where smoking is prohibited and you see a smoker	Ask officials to stop smoking	47(9.4)	61(12.2)	108(21.6)	0.000
	Go to him and ask him to stop smoking	41(8.2)	45(9)	86(17.2)	
	Leave the place	40(8)	92(18.2)	132(26.4)	
	I do nothing	102(20.4)	72(14.4)	174(34.8)	

**Table 7** Knowledge about effects of passive smoking according to colleges

Items		Colleges				P value
		Medicine	Science	Computer Science	Total	
What do you do when someone smokes beside you?	Ask him to put out the cigarette	12(2.4)	36 (7.2)	27(5.4)	75(15)	0.003
	Ask him to smoke elsewhere	28(5.6)	42(8.4)	34(6.8)	104(20.8)	
	Go away from him until he puts it out	73(14.6)	55(11)	56(11.2)	184(36.8)	
	I do nothing	54(10.8)	40 (8)	43(8.6)	137(27.4)	
When there are children in front of a smoker at home	Ask him to put out the cigarette	39(7.8)	47(9.4)	49(9.8)	135(27)	0.390
	Ask him to smoke elsewhere	64(12.8)	75(15)	62(12.4)	201(40.2)	
	Ask to children to go away from him	42(8.4)	39(7.8)	35(7)	116(23.2)	
	I do nothing	22(4.4)	12(2.4)	14(2.8)	48(9.6)	
When a family member smokes in the presence of a pregnant woman	Ask him to put out the cigarette	53(10.6)	40(8)	56(11.2)	149(29.8)	0.020
	Ask him to smoke elsewhere	65(13)	79(15.8)	71(14.2)	215(43)	
	Ask pregnant lady to go away from him	30(6)	44(8.8)	22(4.4)	96(19.2)	
	I do nothing	19(3.5)	10(.2)	11(2.2)	40(8)	
When you	Ask officials to stop smoking	30(6)	47(9.4)	31(6.2)	108(21.6)	0.002



are in a place where smoking is prohibited and you see a smoker	Go to him and ask him to stop smoking	18(3.6)	41(8.2)	27(5.4)	86(17.2)	
	Leave the place	51(10.2)	41(8.2)	40(8)	132(26.4)	
	I do nothing	68(13.6)	44(8.8)	62(12.4)	174(34.8)	

Among study population, 181 (78.7) males and 215 (79.6) females take information about smoking from internet, 54(23.4) male and 72(26.7) female from others. According to residency, 164(82.4) of Urban and 232(77.1) of rural were take information from the internet. Students lived in three geographical areas coastal, low lander, a mountain with frequency as of 148(81.1) and 174(77.0) and 80(80.0) respectively take informational from the internet. According to marital status and academic level, most of the participants take information from the internet. According to college of Medicine, science, and Computer Science most of students take information from internet are shown in table 8.

**Table 8** Sources of Information about smoking

Sources of Information about smoking among study population		Frequency/Prevalence (%)				
		Internet	News	News papers	Publications	Others
Overall frequency		396 (79.2)	200 (40.0)	132 (26.4)	140 (28.0)	126 (25.2)
Gender	Male (230)	181 (78.7)	122 (53.0)	78 (33.9)	58 (25.2)	54 (23.4)
	Female (270)	215 (79.6)	88 (32.6)	54 (20.0)	82 (35.7)	72 (26.7)
	p Value	0.826	0.000	0.001	0.231	0.470
Residency	Urban (199)	164 (82.4)	86 (43.2)	67 (33.7)	52 (26.1)	41 (20.6)
	Rural (301)	232 (77.1)	114 (37.9)	65 (21.6)	88 (29.2)	85 (28.2)
	p Value	0.177	0.233	0.004	0.477	0.059
Geographical area	Costal (175)	142 (81.1)	72 (41.1)	47 (26.9)	55 (31.4)	47 (26.9)
	Lowlander (226)	174 (77.0)	86 (38.1)	55 (24.3)	60 (26.5)	61 (27.0)
	Mountain (99)	80 (80.8)	42 (42.4)	30 (30.3)	25 (25.3)	18 (18.2)
	p Value	0.542	0.707	0.525	0.443	0.199
Marital Status	Single (448)	363 (81.0)	184 (41.1)	118 (26.3)	117 (26.1)	117 (26.1)
	Married (46)	29 (63.0)	14 (30.4)	12 (26.1)	19 (41.3)	7 (15.2)
	Divorced (6)	4 (66.7)	2 (33.3)	2 (33.3)	4 (66.7)	2 (33.3)
	p Value	0.012	0.354	0.927	0.010	0.241
College (Program)	Medicine (167)	132 (79.0)	67 (40.1)	47 (28.1)	33 (19.8)	58 (34.7)
	Science (173)	140 (80.9)	76 (43.9)	49 (28.3)	55 (31.8)	26 (15.0)
	Computer Science (160)	124 (77.5)	57 (35.6)	36 (22.5)	52 (32.5)	42 (26.3)
	p Value	0.742	0.303	0.398	0.015	0.000
Academic Level	1 <sup>st</sup> Year (101)	86 (171.0)	44 (88.1)	31 (59.5)	34 (65.3)	21 (40.5)
	2 <sup>nd</sup> Year (106)	81 (153.6)	30 (62.4)	15 (30.4)	37 (70.5)	31 (57.3)
	3 <sup>rd</sup> Year (106)	85 (160.6)	56 (105.4)	39 (73.3)	28 (52.6)	22 (41.2)
	4 <sup>th</sup> Year (97)	81 (169.0)	36 (75.5)	26 (56.6)	17 (35.1)	19 (37.8)
	5 <sup>th</sup> Year (46)	31 (128.9)	16 (57.9)	9 (26.5)	13 (54.4)	17 (77.0)
	6 <sup>th</sup> Year (44)	32 (147.9)	18 (93.8)	12 (61.1)	11 (53.4)	16 (69.5)
	p Value	0.361	0.000	0.007	0.401	0.227

#### 4. DISCUSSION

In comparison with our study, college of medicine had good knowledge about passive smoking with about (29.0%), while another Saudi study among medical students showed that most of the students (91.4%) did not have sufficient information about the epidemiology of smoking with low information about the health risks related to tobacco use (53%) (Iradi & Al-Shehri, 2014). Concerning the relationship between birth weight and maternal passive smoking exposure, our study showed 27% of males and 29.8% of females agreed that however results of a pilot cohort study were quite high. It found that (89%), (68%) and (93.5%) agreed or very much agreed about that tobacco consumption is harmful to pregnant mothers and her unborn baby's health, exposure to smoking is harmful to pregnant mothers and her unborn baby's health, and that exposure to smoking is harmful to the newborn's health respectively (Hamedy et al., 2017).

Another study found that passive smoking associated with delivery with lower mean gestational age, lower mean birth weight, lower median 1-min Apgar score, and higher rates of small gestational age neonates (Hamedy et al., 2017). As for pregnant women, only 33.2% of males and 32.2% of females agreed that pregnant women exposed to smoke have more miscarriages. In current study 30.2% and 42.6% of females believed that passive smoking increases the lung cancer incidence, which supported by the result of the study of incidence of lung carcinoma in relation to active and passive smoking. It revealed that prolonged passive smoking exposure at home increased lung cancer risk. Such findings tend to support the need for smoking prohibition and cessation programs, passive smoking studies, and further analysis of risk factors for lung cancer besides smoking (Wang et al., 2015). As regards pneumonia in children, 35% of males and 46.8% of females believed that children exposed to smoke are susceptible to the risk of pneumonia. A study showed exposure to environmental tobacco smoke is the most significant preventable risk factor for admission to hospital with pneumonia among children aged five. Vietnam has 44,000 hospitalizations that are preventable every year due to pneumonia among children aged 5 years and between (Suzuki et al., 2009). In comparison with a study from Eastern Nigeria, they found that about (92.8%) of the participants are aware of the health effects of passive smoking on the obstetric population and (65.2%) were aware of the health effects on children from exposure to passive smoke. were our study (65.4%) are aware of obstetric health effects and (81.8%) are aware of health effects on children (Pascal Iloh & Collins, 2017). An additional study found that prolonged passive smoking exposure at home increased lung cancer risk in our study a total of 364 (72.8%) agrees to this (Wang et al., 2015).

In another study 200 women, 178 (89%), 136 (68%) and 187 (93.5%) agreed or very much agreed about that tobacco consumption is harmful to pregnant mothers and her unborn baby's health and that includes the effect on birth weight of a baby were (Hamedy et al., 2017). In our study a total of 284 (56.8%) agrees about this effect. One study mentioned the relation between the awareness of passive smoking and education level (Cheah et al., 2018). In current study, they found that level of education is closely associated with awareness of passive smoking were the proportion of highly educated individuals was (88.82%) compared to low educated individuals which are (78.78%). In comparison with our study, the college of medicine scored (29.0%) was a college of science scored (26.0%) and college of computer science scored (22.6%) when assessing their awareness about passive smoking according to education level according to college (Cheah et al., 2018).

In comparison with a study from Shaqra University in Saudi Arabia found that most citizens have SHS awareness but are ignorant of the extent of the negative results (Sam et al., 2020). Another study about Smoking usages among Saudi female university students found that a good percentage of knowledge and a high level of awareness about the health effects of smoking among the students, but it didn't affect their smoking attitude (Merdad et al., 2007). While our study found that (27.4%) of the study population will do nothing when they exposed to second-hand smoking, while 15% will Ask smoker to put out the cigarette, 20.8% will Ask smoker to smoke elsewhere, and 36.8% go away from smoker until he puts it out. Presence of smoker family with a pregnant woman, 92% of participation has to avoid exposure to passive smoking 41.6% were male and 50.4% were female, when 8% do nothing 4.4% were male and 3.6% were female.

#### 5. CONCLUSION

The study shows that despite the good information that the medical students at Jazan University have about passive smoking, extra-curriculum programs are necessary to increase the knowledge and change the attitudes toward passive smoking because their attitudes and practices to avoid passive smoking are not associated with their level of knowledge.

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### Author Contribution

All authors contributed in the process of data curation. Formal analysis effectuated by; Abuobaida Yassin. All authors contributed in supervision, methodology, writing, and editing. All authors accomplished final revision and drafting for publication.

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### Conflict of Interest

The authors declare that there are no conflicts of interests.

### Informed consent

Written & Oral informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

### Ethical approval

The study was approved by the Medical Ethics Committee of JAZAN University (ethical approval code: REC41/1-058).

### Data and materials availability

All data associated with this study are present in the paper.

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